3 (Sem–5/CBCS) BOT HC 1

2024

BOTANY

(Honours)

Paper : BOT–HC–5016

(Reproductive Biology of Angiosperm)

Full Marks : 60

Time : Three hours

The figures in the margin indicate full marks for the questions.

1. Answer the following questions : 1×7=7

   (a) Who formulated the ABC model of flower development ?

   (b) Write the name of the gene which form callose in meiocytes.

   (c) What is pollinia ?

   (d) What is apomixis ?

   (e) What is tapetum ?

(f) What is the number of APC in *Polygonum* type of embryo sac ?

(g) Define polyembryony.

2. Answer the following questions : 2×4=8

(a) Why the tube nucleus is regarded as "Non-functional Vestigial Structure" ?

(b) Write the functions of tapetum.

(c) Write the differences between Anacatatreme and Zonotreme types of pollen grains.

(d) What is double fertilization ?

3. Answer ***any three*** of the following questions : 5×3=15

(a) Discuss about the Pollen Wall Proteins and their significance.

(b) Briefly describe the NPC systems of Pollen Classification.

(c) What is pollination ? Discuss various pollination types in flowering plants.

(d) Justify the statement *Flower is a modified determinate shoot* .

(e) What are the objectives of experimental embryology ?

4. Answer ***any three*** of the following questions : 10×3=30

(a) Discuss the ABC Model of Flower Development in flowering plants.

(b) Describe the microgametophyte development of flowering plants with label diagram.

(c) What is female gametophyte ? Describe in detail, the structure of various types of tetrasporic embryo sacs found in angiosperms. 2+8=10

(d) Discuss the post-fertilization changes within the megasporangium (ovule).

(e) What is endosperm ? Describe various types of endosperms found in Angiosperms with neat diagram. 2+8=10

(f) Write the development of a typical dicotyledonous embryo. Add a note on dispersal of seeds. 6+4=10

3 (Sem–5/CBCS) BOT HC 2

2024

BOTANY

(Honours Core)

Paper : BOT–HC–5026

(Plant Physiology)

Full Marks : 60

Time : Three hours

The figures in the margin indicate full marks for the questions.

1. Answer the following questions : 1×7=7

   (a) _____ is a constituent element of chlorophyll.

   (b) Aquaporins are _____.

   (c) _____ is a necessary component of nitrogenase enzyme in plants.

   (d) Chemically kinetin is known as _____.

   (e) Phototropins are _____ protein.

Contd.

(f) Many microbial species produce water solute pigments that serve as chelating agents, termed as _____ .

(g) In proton pump _____ enzyme is involved.

2. Answer the following questions : 2×4=8

(a) Differentiate between apoplast and symplast.

(b) Differentiate between chlorosis and etiolation.

(c) Write the differences between Pr and Pfr forms of phytochrome.

(d) What are ABC transporters ? Mention their role in solute transport.

3. Write briefly on ***any three*** of the following : 5×3=15

(a) Jasmonic acid

(b) Phototropins

(c) Pressure potential

(d) Role of ABA in environmental stress

(e) Donnan equilibrium

4. Answer the following questions : ***(any three)*** 10×3=30

(a) What are gibberellins ? Describe the physiological effects of gibberellins. 2+8=10

(b) Describe the structure and function of cryptochrome.

(c) Describe the active and passive absorption of water by roots in plants.

(d) What is florigen concept ? Describe its role in stimulating flowering in different types of photoperiod sensitive plants. 4+6=10

(e) Describe the starch–sugar hypothesis and K^+ pump theory of stomatal movement. 5+5=10

(f) What is seed dormancy ? Mention different types of seed dormancy. Describe the causes and mechanisms of breaking of seed dormancy. 1+2+7=10